J. HYM. RES.
Vol. 9(2), 2000, pp. 320–323

The Identity of *Pteroptrix imitatrix* (Fullaway) (Hymenoptera: Aphelinidae)

ANDREW POLASZEK AND GERHARD L. PRINSLOO

(AP) Unit of Parasitoid Systematics, CABI Bioscience UK Centre (Ascot), Department of Biology, Imperial College at Silwood Park Asoct, Berks SL5 7PY, UK; (GLP) Plant Protection Research Institute, Private Bag X134, Pretoria 0001, South Africa

Abstract.—Taxonomic notes are provided on two aphelinid wasps, *Pteroptrix imitatrix* (Fullaway), described from Hawaii, and *Pteroptrix albifemur* (Girault), described from Australia. The former is shown to be a synonym of the latter. New taxonomic, distributional and biological data are provided.

Among several Aphelinidae collected in the Galapagos Islands by Dr John Heraty (UCR) were three specimens of a *Pteroptrix* species belonging to the *maritima*-group *sensu* Viggiani and Garonna (1993). This species-group formerly comprised part of the genus *Archenomus*, and using the key to world species of *Archenomus* by Prinsloo and Neser (1990) the specimens were identified by the first author as *Pteroptrix* (= *Archenomus*) *albifemur* (Girault). Consulting the description of *P. imitatrix* (Fullaway) and non-type material of that species at the United States National Museum, it became apparent that the specimens from the Galapagos were also very close, if not identical, to that species. Prinsloo and Neser did not treat *P. imitatrix* as the type was not located by them. *P. imitatrix* was described from Hawaii, and after consultation with Mr G. Nishida of the Bishop Museum the type material was finally located by Mr B. Kumashiro at the Department of Agriculture. We have compared the types of *P. albifemur* (Girault), *P. imitatrix* (Fullaway) and the Galapagos (Ecuador) material, and find them to be conspecific. Subsequently, material from Florida, Puerto Rico and India was also found to belong to *P. albifemur*. The following synonymy, redescription, lectotype designation and distributional information are published to clear up some of the many taxonomic problems that still exist in this genus.

Terminology follows Hayat (1983) except that the terms mesosoma and metasoma replace thorax plus propodeum, and gaster, respectively. Abbreviations of depositories can be found under "Acknowledgments".

Pteroptrix albifemur (Girault 1915)

(Figs. 1–3)

Apteroptrix albifemur Girault 1915: 65.

Archenomus albifemur (Girault): Prinsloo and Neser 1990: 23.

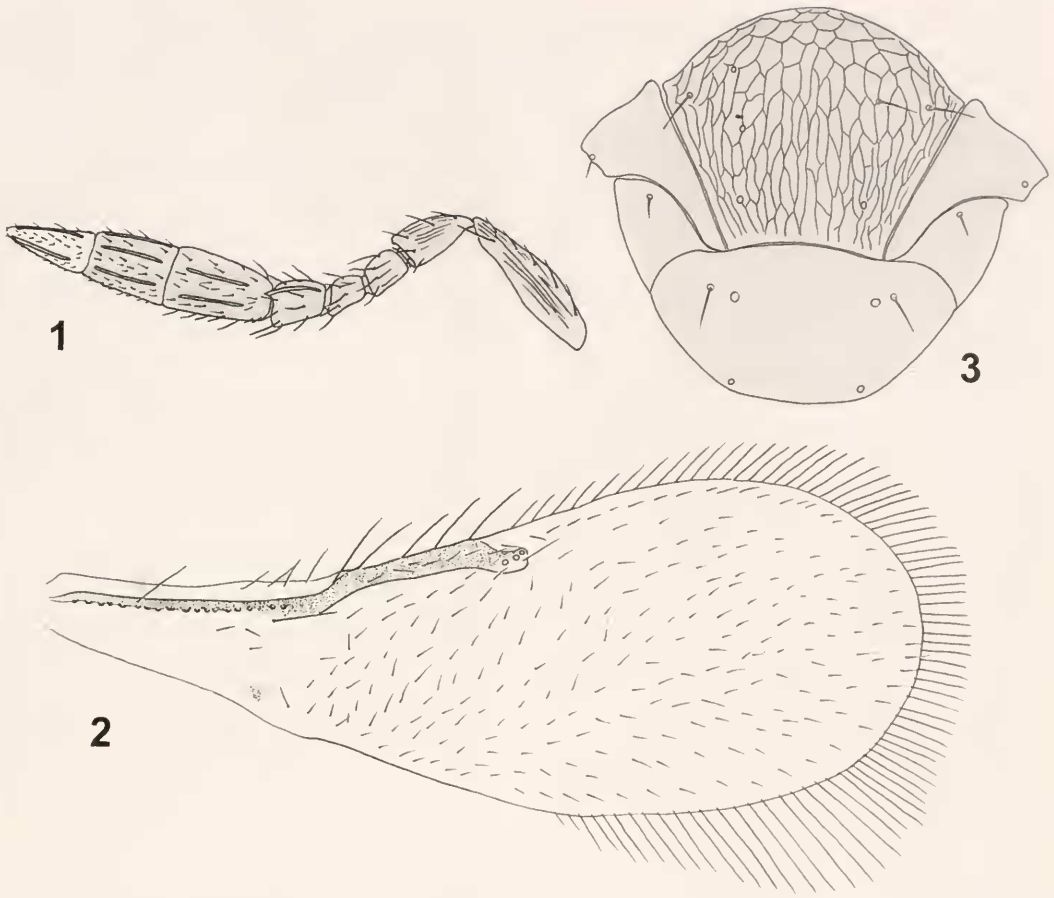
Pteroptrix albifemur (Girault): Viggiani and Garonna 1993: 61; Hayat 1998:245.

Pseudopteroptrix imitatrix Fullaway 1918: 464. **Syn. nov.**

Archenomus imitatrix (Fullaway): Prinsloo and Neser 1990: 23.

Pteroptrix imitatrix (Fullaway): Viggiani and Garonna 1993: 60.

Female.—**Colour**: Antenna with flagellum pale brown, the scape with its outer edge darker brown, radicle dark brown. Head with the lower occiput, genae and stemmaticum dark brown, the eye margins darkest, frons and upper occiput paler brown. Mesosoma brown, the scutel-



Figs. 1–3. *Pteroptrix albifemur*, female. 1, Antenna. 2, Fore wing. 3, Mesonotum, showing sculpture of mesoscutal mid lobe (specimen from Santa Cruz, Galapagos).

lum strikingly white, side lobes and border of mesoscutum paler brown. Legs white, the hind coxa and leading edge of the hind femur slightly darkened. Wings hyaline, slightly darkened below the marginal vein. Metasoma brown. **Morphology**: Mandibles with two teeth and a truncation. Antennal formula 1,1,3,3 (fig. 1); scape slightly more than 2 × pedicel length. Funicle segments all longer than wide, subequal in length. F2 slightly the shortest; funicle about 0.5 × length of club. Flagellum with the following numbers of longitudinal sensilla: F1: 0; F2: 0; F3: 0–1; F4: 3–4; F5: 3–4; F6: 3. Mid lobe of mesoscutum (fig. 3) with 6–7 setae, each lateral lobe with 1, each axilla with 1, and scutellum with 4. Fore wing (fig. 2) with 1 seta on submarginal vein, 2–4 setae in basal cell. Anterior margin of marginal vein with 5–6 setae, and one large seta at the junction of the submarginal vein and parastigma. Maximum width of wing 2.6–2.9 × longest seta on marginal fringe. Length of second valvifers 3.3–3.6 × third valvulae. Second valvifer and third valvula combined 1.1 × length mid tibia. Metasoma oval, longer than wide and about 1.5 × length mesosoma. Terga II-VII with 0, 1+1, 1+1, 1+1, 1+2+1 and 1+2+1 setae respectively.

Male.—Unknown

Variation.—Insignificant in the material examined.

Material examined.—Type material: Holotype female *Apteroptrix albifemur* Girault [AUSTRALIA: Cairns, Gordonvale] Type HY/2962 (3894) (QM). Lectotype female (here designated) *Pseudopteroptrix imitatrix* Fullaway [HAWAII:] Honolulu. 17.i.[19]18 *ex Howardia biclavis* (HDA, slide-mounted); paralectotypes, 5 females: 1 female [HAWAII:] Honolulu, Oahu, 12.i.18 (D.T. Fullaway) *Howardia biclavis* (BMNH, slide-mounted). [HAWAII:] Honolulu, Oahu, 4.ii.18 (D.T. Fullaway) *Howardia biclavis* (1 female HDA, card-point; 1 female USNM slide-mounted). [HAWAII:] Tantalus, el. 1300 ft (J. Kotinsky) H. biclavis (2female, HDA). Additional material: ECUADOR: Galapagos, Santa Cruz, Darwin Sta. 20m PAN 14–18.v.91 (J. Heraty) arid zone (1female, BMNH). ECUADOR: Galapagos, Isabela, C. Azul, 3 Km W Cal. Iguana 200 m 25.v.91 (J. Heraty) deciduous forest H91/061 (1 female, BMNH). ECUADOR: Galapagos, Isabela, Alcedo 7 Km SW NE Playa 600 m 25.vi.91 (J. Heraty) arid forest H91/118 (1 K, BMNH). ECUADOR: Fernandina, 5 Km NE Cabo Hammon 110 m 4–10.v.91 (J. Heraty) pan. Palo Santo forest H91/031 (1 female, USNM). INDIA: Karnataka, 25 Km W. of Mudigere 28.x. – 3.xi.1979 J.S. Noyes (1 female, BMNH; Hayat det.). PUERTO RICO: Indiera 9–10.iii.1936 H.L. Dozier "ex Howardia biclavis on sapotaceous tree, *Lucuma* sp." (7 female, USNM). PUERTO RICO: Mayaguez 18.x.1935 H.L. Dozier "sweeping Roble and roadside vegetation at 1000 ft" (1 female, USNM). PUERTO RICO: Rio Piedras 3.ix.1912 T.H. Jones "from twig of achiote, *Bixa orellana*, on which *Howardia biclavis* was present" (1 female, USNM). USA: Florida, Oneco J.W. Collins 2.ix.1922 (1female, USNM).

Host.—Diaspididae: *Howardia biclavis* (Comstock). A pantropical, polyphagous species (Williams and Watson, 1988) occasionally recorded as a pest, for example of citrus (*Grillo et al.*, 1983). The "eulophid" parasite of *H. biclavis* recorded by the latter authors could well be *P. albifemur*. Fullaway (1918) mentioned a slide-mounted specimen reared from *Hemiberlesia* (as *Aspidiotus*) *rapax* (Comstock). This specimen has not been seen by us.

Distribution.—Australia, Ecuador, Hawaii (and presumably widespread in the Pacific), India, Puerto Rico, USA (Florida).

Discussion.—*Pteropterix albifemur* belongs to the *maritima*-group of *Pteroptrix*, where it was correctly placed by Viggiani and Garonna (1993). This group is characterized by lacking the complete sulcus above the occipital foramen and antennal formula of female 1.1.3.3. Viggiani and Garonna (1993) were mistaken in suggesting *that P. imitatrix* belongs to the *bicolor*-group. Prinsloo and Neser (1990) placed *albifemur* in their *peratus*-group, and suggested *imitatrix* could belong to their *incolus*-group. These last-mentioned species groups were combined into the *maritima*-group, following the redefinition of species groups by Viggiani and Garonna (1993), a step that was necessitated by the incorporation of *Archenomus* into *Pteroptrix*. *Pteroptrix albifemur* is morphologically close to the following species in the *maritima*-group: *P. opaca* Erdös, *P. patriciae* (Prinsloo and Neser) *and P. abnormis* (Prinsloo and Neser). We have not examined type material of *P. opaca* (described from Hungary), which appears to be lost (J. Papp, personal communication). We have, however, examined specimens from Hungary (though not from the type locality) and from Italy, which agree in all respects with the original description. *Pteroptrix opaca* differs from *P. albifemur* most strikingly in the colour of the legs (tibiae and femora dark in *P. opaca*, very largely pale in *P. albifemur*). The wing of *P. opaca* is much more deeply infuscated below the marginal vein than in *P. albifemur*, as well as being noticeably more densely setose. *Pteroptrix abnormis* also differs from *P. albifemur* in the colour and setation of the fore wings, although the legs and antennae are very similar in colour and proportions to those of *P. albifemur*. The sculpture

of the face and mesoscutum of *P. abnormis* is, however, much less pronounced than in *P. albifemur*. Differences between *P. patriciae* and *P. opaca* are slight, being restricted largely to the colour of the legs (although the F1 and F3 of the female antenna in *P. patriciae* are slightly longer than those of *P. opaca*). In this respect, *P. patriciae* is somewhat intermediate between *P. opaca* and *P. albifemur*. We suggest that a thorough review of the species comprising the *maritima*-group of *Pteroptrix* be carried out before synonymising any of these species based on the limited material available during this study.

ACKNOWLEDGMENTS

For the loan or donation of material, we are grateful to the following: J. Heraty, University of California, Riverside, (UCR); M. Schauff, United States National Museum, Washington, D.C. (USNM); G. Monteith, Queensland Museum, Brisbane, Australia (QM); W. Nagamine, Hawaii Department of Agriculture, Honolulu (HDA); G. Viggiani, University of Naples, Portici, Italy; J. Papp, Hungarian National Natural History Museum, Budapest. The authors also thank John LaSalle for his help and advice. This study was facilitated by a Smithsonian Institution visitors' grant to the first author, which is gratefully acknowledged. Additional space and facilities during this study were kindly provided by the Department of Entomology, The Natural History Museum, London (BMNH).

LITERATURE CITED

Fullaway, D.T. (1918) A new genus of pteroptricine Aphelinidae (Hymenoptera). *Proceedings of the Hawaiian Entomological Society* 3: 463–464.

Girault, A.A. (1915) Australian Hymenoptera Chalcidoidea—VII: Encyrtidae. *Memoirs of the Queensland Museum* 4: 1–184.

Grillo, M., N. del Valle and M. Alvarez (1983) *Howardia biclavis* (Comstock) (Homoptera: Coccidae) en citricos. *Centro Agricola* 10: 47–53.

Hayat, M. (1983) The genera of Aphelinidae (Hymenoptera) of the World. *Systematic Entomology* 8: 63–102.

Hayat, M. (1998) Aphelinidae of India (Hymenoptera: Chalcidoidea): a taxonomic revision. *Monographs on Entomology International* 13: 1–416.

Prinsloo, G.L. and O.C. Neser (1990) The southern African species of *Archenomus* Howard (Hymenoptera: Aphelinidae) with a key to the species of the world. Entomology Memoir, Department of Agricultural Development, Republic of South Africa 79: 1–26.

Viggiani, G. and A.P. Garonna (1993) Le specie italiane del complesso *Archenomus* Howard, *Archenomiscus* Nikolskaya, *Hispaniella* Mercet e *Pteroptrix* Westwood, con nuove combinazioni generiche (Hymenoptera: Aphelinidae) *Bollettino del Laboratorio di Entomologia agraria "Filippo Silvestri" Portici* 48: 57–88.

Williams, D.J. and Watson, G.W. (1988) *The scale insects of the tropical South Pacific region Part 1 The armoured scales (Diaspididae)* CAB International, Wallingford, U.K. 290 pp.